CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0110

NPDES NO. CA 0080799

WASTE DISCHARGE REQUIREMENTS FOR BELLA VISTA WATER DISTRICT WATER TREATMENT PLANT SHASTA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter, the Regional Board) finds that:

1. The Bella Vista Water District (Discharger) submitted an Application/Report of Waste Discharge, dated 13 May 2003, and applied to renew its permit to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Bella Vista Water Treatment Plant located in Shasta County.

2. The Discharger owns and operates a water treatment plant (Facility), that produces up to 45 million gallons per day (mgd) of treated, potable water for domestic, municipal, and agricultural purposes. The Facility is located in Section 29, Township 32 North, and Range 4 West of the Mt. Diablo Base Line and Meridian on Assessor's Parcel No. 117-290-05 as shown on Attachment A, a part of this Order. The Facility discharges settled filter backwash water to Dry Gulch, a water of the United States at Discharge Point 001 (Discharge 001), approximately located at latitude 40^{o} 36' 01" N and longitude 122^{o} 21' 08" W. Dry Gulch, in succeeding order, is tributary to Boulder Creek, Churn Creek, and the Sacramento River.

3. Source waters for the Facility are the Sacramento River and local groundwater. The Facility chlorinates raw water from the Sacramento River and pumps it approximately one mile to the water treatment plant where it is treated by multi-media filters. An aluminum based coagulant is added to the raw water prior to filtering in order to increase removal efficiency. The filters are regularly backwashed for cleaning. The backwash water enters one of two unlined settling ponds that overflow to a lower pond constructed in Dry Gulch. Sludge has periodically been scraped and stockpiled in the settling ponds for the last approximately 12 years. The Discharger is currently arranging for characterization and disposal of this stockpiled sludge. The Discharger has stated that future sludge management will include characterization and disposal of sludge approximately every two years. The design capacity of the backwash settling ponds is 1.5 mgd.

4. When necessary, the Sacramento River supply is augmented with groundwater from five wells, which are connected directly to the Discharger's potable water distribution system. As needed, wells are brought online, and untreated groundwater is periodically "run to waste" for a short duration upon start up. Groundwater from the wells is chlorinated and filtered for iron and manganese removal. Filter backwash is discharged to onsite holding/settling tanks, where clarified backwash water is returned to the front of the filters.

Sludge from the settling tanks is periodically characterized and disposed at an appropriate facility.

5. Monitoring data from 1999 through May 2003 characterize the wastewaters discharged from the Facility as follows:

	1999	2000	2001	2002	2003
Flow[a] (mgd)					
Monthly Avg.	0.64	0.30	0.26	0.32	0.17
Monthly Max.	1.22	0.61	0.54	0.51	0.38
pH Range	6.7 – 8.7	6.5 – 9.2	6.3 – 9.3	5.8 – 9.5	6.7 – 8.8
Set. Solids (mL/L)					
Monthly Avg.	0.0	0.0	0.0	0.0	0.0
Monthly Max.	0.0	0.0	0.0	0.0	< 0.1
Chlorine (mg/L)					
Max.	0.0	0.0	0.0	0.0	0.0

[a] Filter backwash is measured and reported as effluent flow.

6. The water treatment plant is in the Enterprise Flat Hydrologic Area (No. 508.16), as depicted on interagency hydrologic maps prepared by the California Department of Water Resources (DWR) in August 1986. The mean annual rainfall in the area is approximately 35 inches, based on information from the U.S. Geological Survey and DWR.

7. The Regional Board adopted a *Water Quality Control Plan*, *Fourth Edition,* (Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and describes an implementation program and policies to achieve water quality objectives for all waters of the Basin. This includes plans and policies adopted by the State Water Resources Control Board (SWRCB) and incorporated by reference, such as Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (Resolution No. 68-16). These requirements implement the Basin Plan. The Basin Plans, as amended, designate beneficial uses, establish water quality objectives, and contain implementation plans and policies for waters of the Basins. Pursuant to the California Water Code (CWC) Section 13263(a), waste discharge requirements must implement the Basin Plans.

8. The United States Environmental Protection Agency (USEPA) adopted the *National Toxics Rule* (NTR) on 22 December 1992, which was amended on 4 May 1995 and 9 November 1999, and the *California Toxics Rule* (CTR) on 18 May 2000, which was amended on 13 February 2001. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board (State Board) adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP) on 2 March 2000, which contains policies and procedures for implementation of the NTR and the CTR.

RECEIVING WATER BENEFICIAL USES

9. The Basin Plan on page II-2.00 states that: "Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams." The beneficial uses of the Sacramento River are specifically identified in the Basin Plan, however, the beneficial uses of Dry Gulch, Boulder Creek, and Churn Creek are not individually identified in the Basin Plan. Dry Gulch, Boulder Creek, and Churn Creek are tributary to the Sacramento River between Shasta Dam and the Colusa Basin Drain, and therefore, in accordance with the Basin Plan, the beneficial uses of the Sacramento River are applicable to these tributary streams. The Basin Plan on page II-1.00 states: "Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…" and with respect to disposal of wastewaters states that "…disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses."

10. The Basin Plan identifies the following beneficial uses for the Sacramento River between Shasta Dam and the Colusa Basin Drain: municipal and domestic supply; agricultural supply; industrial service supply; hydropower generation; water contact and noncontact recreation; warm and cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; navigation; ground water recharge; and freshwater replenishment. In addition, State Board Resolution No. 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution No. 89-056, requires the Regional Board to assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in Table II-1.

11. Upon review of the flow conditions, habitat values, and beneficial uses of Dry Gulch, Boulder Creek, and Churn Creek (Churn Creek and its tributaries), the Regional Board finds that the beneficial uses identified in the Basin Plan for the Sacramento River between Shasta Dam and the Colusa Basin Drain are applicable to Churn Creek and its tributaries based upon the following facts:

    a. *Municipal and Domestic Supply, Agricultural Supply, Industrial Service Supply*

    The State Board has issued water rights to existing water users along Churn Creek and its tributaries and the Sacramento River downstream of the discharge for multiple uses including domestic, agricultural, and industrial service supply. Because Churn Creek and its tributaries are intermittent streams, the creeks likely provide groundwater recharge during periods of low flow. Domestic water supply in the area is generally provided by municipal entities using treated surface water. Although the use of area groundwater as domestic supply is limited, the potential for expanded use exists. In addition to the existing water uses, growth in the area downstream of the discharge is

expected to continue, which presents a potential for increased domestic, agricultural, and industrial uses of groundwater and the water in Churn Creek and its tributaries.

b. *Hydropower Generation, and Navigation*

Although no records of existing hydropower generation and navigation uses were found on Churn Creek and its tributaries, these uses do exist in the Sacramento River to which Churn Creek is tributary. The very nature of these uses depends on the presence of flow from tributary streams and therefore these uses are protected by including them as beneficial uses in streams tributary to the Sacramento River. Furthermore, considering the likely future value of electricity generation, it is not unreasonable to expect that new technologies for small hydropower projects may make hydropower generation uses on Churn Creek and its tributaries desirable.

c. *Water Contact and Noncontact Recreation*

The Regional Board finds that Churn Creek and its tributaries flow through rural and residential areas and that there is ready public access. Contact and noncontact recreational activities exist and are likely to increase as the population in the area grows. Prior to discharge into the Sacramento River, Churn Creek and its tributaries flow through areas of general public access. The Sacramento River also offers recreational opportunities.

d. *Warm and Cold Freshwater Habitat, Migration of Aquatic Organisms, Spawning, Reproduction, and/or Early Development, and Wildlife Habitat*

Churn Creek and its tributaries flow to the Sacramento River. The California Department of Fish and Game (DFG) has verified that the fish species present in Churn Creek and its tributaries are consistent with both cold and warm water fisheries. There is a potential for anadromous fish migration necessitating a cold water designation and cold water salmonid species have been found in Churn Creek and its tributaries. The Basin Plan (Table II-1) designates the Sacramento River from Shasta Dam to Colusa Basin Drain as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Churn Creek and its tributaries. The cold water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L. The Discharger is not, however, required to improve the naturally occurring dissolved oxygen level. The riparian areas along Churn Creek and its tributaries support wildlife habitat.

e. *Groundwater Recharge, and Freshwater Replenishment*

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since Churn Creek and its tributaries are at times dry, it is reasonable to assume that the stream flow is not present at its source, or the

water is lost by evaporation, flow downstream, and percolation to groundwater providing a source of municipal and irrigation water supply. When flow is present in Churn Creek and its tributaries, there is hydraulic continuity between it and the Sacramento River. During periods of hydraulic continuity, Churn Creek and its tributaries add to the water quantity and may impact the quality of water flowing down stream in the Sacramento River.

12. The Regional Board also finds that based on the available information and on the Discharger's application, that Dry Gulch, Boulder Creek and Churn Creek are intermittent streams. The intermittent nature of Churn Creek and its tributaries means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within Churn Creek and its tributaries support the aquatic life. Both conditions may exist within a short time span, where Churn Creek and its tributaries would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Sacramento River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect beneficial uses. Significant dilution may occur for limited duration during and immediately following high rainfall events.

GROUNDWATER

13. The beneficial uses of groundwater, as identified in the Basin Plan, are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

REASONABLE POTENTIAL ANALYSIS AND EFFLUENT LIMITATIONS

14. USEPA regulations at 40 CFR 122.4 (d) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numerical water quality standard. Besides water quality criteria contained in the CTR, applicable numerical and narrative water quality objectives are contained in the Basin Plan. The SIP contains guidance on implementation of the CTR and for determining reasonable potential for CTR pollutants. To determine reasonable potential for non-CTR pollutants, the Regional Board relies on methodology presented in USEPA's *Technical Support Document for Water Quality Based Toxics Control* (TSD) (EPA/505/2-90-001, 1991). For interpretation of narrative water quality objectives, the Regional Board also uses its *Compilation of Water Quality Goals* (2000) as a resource.

15. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations),

304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

16. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Board, using methodology described in Section 1.3 of the SIP, finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above applicable water quality standards for copper and dichlorobromomethane. Effluent limitations for these constituents are included in this Order, as described below. Lead and silver were detected in receiving water samples, however insufficient information exists to determine reasonable potential for these pollutants as discussed below. Bis-2-ethylhexylphthalate was detected in receiving water samples, but may be due to sampling and/or laboratory contamination, as discussed below.

Copper

The CTR and Basin Plan include hardness-dependent standards for the protection of freshwater aquatic life for copper. Freshwater aquatic habitat is a beneficial use of the receiving water. USEPA recommends conversion factors (translators) to translate dissolved concentrations of certain metals to total recoverable concentrations. The translator for copper in freshwater is 0.960 for both the acute and the chronic criteria. Using a water hardness of 23 mg/L as $CaCO_3$ (the lowest hardness value observed in the receiving water), the most stringent applicable water quality standards for copper are 2.6 and 3.4 µg/L (dissolved) based on the CTR chronic and Basin Plan acute criteria, respectively, for protection of aquatic life. In samples collected on 20 May 2002 and 15 April 2003, copper (total recoverable) was measured at 3.4 and 3.1 µg/L in the receiving water and at 4.0 and 2.8 µg/L in the effluent, respectively. After applying the translator, the highest effluent and receiving water samples concentrations exceed the water quality standards and therefore, effluent limitations are required. Determination of reasonable potential and calculation of effluent limits is further explained in the attached Information Sheet for this Order.

The effluent limitation for copper is a new requirement in this Order. Section 2.1 of the SIP provides that: "*Based on an existing discharger's request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit*." However, in accordance with the Regional Board's *Policy for Application of Water Quality Objectives*, presented in Chapter IV of the Basin Plan, schedules for compliance with final effluent limitations for copper, which are based on water quality criteria adopted before 25 September 1995, may not be authorized in an NPDES permit. Therefore, the final effluent limits established in this Order for copper, become immediately applicable on the effective date of this Order. However, the Regional Board may adopt other Orders, such as a Cease and Desist Order, allowing the Discharger a period of time to fully comply with the effluent limit for copper.

Lead

The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. The Basin Plan includes a water quality objective for lead that is independent of water hardness, for waters with a beneficial use designation of MUN. Freshwater aquatic habitat and municipal and domestic supply are beneficial uses of the receiving water. USEPA recommends conversion factors (translators) to translate dissolved concentrations of certain metals to total recoverable concentrations. The conversion factor for lead in freshwater is, itself, hardness dependent. At a hardness of 23 mg/L as $CaCO_3$, the translator for lead is equal to 1.0. Using a water hardness of 23 mg/L as $CaCO_3$ (the lowest hardness value observed in the receiving water), the most stringent applicable water quality standards for lead are 0.5 µg/L and 12.6 µg/L (dissolved) based on the CTR chronic and acute criteria, respectively. At higher water hardness values (above approximately 26 mg/L as $CaCO_3$), the CTR acute criteria exceeds the Basin Plan water quality objective that is independent of hardness. Therefore the Basin Plan water quality objective of 15 ug/L for lead is a cap on the acute water quality standard. In receiving water samples collected on 20 May 2002 and 15 April 2003, lead was measured at a maximum concentration of 0.8 ug/L (total recoverable). Lead was not detected in the effluent samples collected on the same dates. After applying the translator, the highest lead concentration in the upstream receiving water samples exceeds the CTR chronic criterion. The SIP, in Section 1.3, Step 8, provides that, "If data are unavailable or insufficient…the Regional Board shall establish interim requirements…that require additional monitoring for the pollutant in place of a water quality-based effluent limitation." The Regional Board finds that, at this time, there is insufficient information to determine if an effluent limit for lead is appropriate. Therefore, the Discharger is required to conduct additional monitoring and reporting for lead, as specified in the attached Monitoring and Reporting Program, to provide sufficient information. If, after sufficient information has been collected, the Regional Board finds that an effluent limit for lead is necessary, then this Order may be reopened and modified to include an appropriate effluent limit for lead.

Silver

The CTR includes an acute hardness-dependent criterion for the protection of freshwater aquatic life for silver. The Basin Plan also includes an acute water quality objective for silver that is independent of hardness, but is significantly higher than the CTR criterion (at all reasonable water hardness values) and is therefore not used. Freshwater aquatic habitat is a beneficial use of the receiving water. USEPA recommends conversion factors (translators) to translate dissolved concentrations to total recoverable concentrations. The translator for silver in freshwater is 0.85 for the acute criterion. Using a water hardness of 23 mg/L as $CaCO_3$ (the lowest hardness value observed in the receiving water), the corresponding CTR acute criterion is 0.28 µg/L (dissolved). In receiving water samples collected on 20 May 2002 and 15 April 2003, silver was measured at a maximum concentration of 0.58 ug/L (total recoverable). Silver was not detected in the effluent samples collected on the same dates. After applying the translator, the highest concentration in the upstream receiving water samples exceeds the CTR acute criterion. The SIP, in Section 1.3, Step 8,

provides that, "If data are unavailable or insufficient…the Regional Board shall establish interim requirements…that require additional monitoring for the pollutant in place of a water quality-based effluent limitation." The Regional Board finds that, at this time, there is insufficient information to determine if an effluent limit for silver is appropriate. Therefore, the Discharger is required to conduct additional monitoring and reporting for silver, as specified in the attached Monitoring and Reporting Program, to provide sufficient information. If, after sufficient information has been collected, the Regional Board finds that an effluent limit for silver is necessary, then this Order may be reopened and modified to include an appropriate effluent limit for silver.

Bis-2-ethylhexylphthalate

The CTR includes criteria for the protection of human health based on consumption of water and organisms for bis-2-ethylhexylphthalate. Municipal and domestic supply is a beneficial use of the receiving water. The criterion for waters from which both water and organisms are consumed is 1.8 µg/L. In samples collected on 20 May 2002 and 15 April 2003, bis-2-ethylhexylphthalate was measured at a maximum concentration of 2.0 ug/L in the upstream receiving water. Bis-2-ethylhexylphthalate was not detected in samples of the effluent. Bis-2-ethylhexylphthalte was detected at concentrations above the CTR criterion. However, bis-2-ethylhexylphthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and it is therefore possible that the contaminant is not truly present in the receiving water or effluent discharge. This Order requires the Discharger to take steps to assure that sampling containers and apparatus are not the source of this contaminant. If changes in sampling and/or analytical procedures and equipment indicate that bis-2-ethylhexylphthalate is not actually present in the effluent or receiving water samples at concentrations that trigger reasonable potential according to the SIP, then effluent limits are not necessary. If bis-2-ethylhexylphthalate continues to be detected in the effluent and/or receiving water, then this Order may be reopened and modified to include an appropriate effluent limitation for bis-2-ethylhexylphthalate.

Dibromochloromethane

The CTR includes criteria for the protection of human health based on consumption of water and organisms for dibromochloromethane. Municipal and domestic supply is a beneficial use of the receiving water. The criterion for waters from which both water and organisms are consumed is 0.56 µg/L. In samples collected on 20 May 2002 and 15 April 2003, dibromochloromethane was measured at a maximum concentration of 1.5 ug/L in the effluent. Dibromochloromethane has not been detected in the upstream receiving water. Dibromochloromethane was detected at concentrations above the CTR criterion and therefore effluent limitations for dibromochloromethane are included in this Order.

This Order also contains an interim, performance based, maximum daily effluent limitation of 4.7 µg/L for dibromochloromethane for discharges to Dry Gulch. This limitation is based on maintaining the dibromochloromethane loading at the current level and was derived using the maximum observed effluent dibromochloromethane concentration. The interim

limitation will become effective only if the Discharger submits appropriate justification for interim limits in accordance with provisions in this Order. If such justification is not submitted, the final effluent limits will become immediately applicable. If interim limits become effective, the final effluent limits shall not become applicable until **5 years** after the effective date of this Order in accordance with provisions in this Order. Determination of reasonable potential and calculation of effluent limits is further explained in the attached Information Sheet for this Order.

17. As stated in the above Findings, the USEPA adopted the NTR and the CTR, which contain water quality standards applicable to this discharge, and the SIP contains guidance on implementation of the NTR and CTR. The SIP, Section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must: be based on current treatment plant performance or existing permit limitations, whichever is more stringent; include interim compliance dates separated by no more than one year; and be included in the Provisions. The interim limitations in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations would be established as the mean plus 3.3 standard deviations of the available data. If actual sampling showed an exceedance of the proposed 3.3-standard deviation interim limit, the maximum detected concentration would be established as the interim limitation. When there are fewer than ten sampling data points available (as is the case for this Order), the TSD recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed sampling point to obtain the daily maximum interim limitation (*TSD, Table 5-2*). The Regional Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with NTR- and CTR-based effluent limitations cannot immediately be achieved in the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. For example, USEPA states in the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for copper, that it will take an unstressed system approximately three years to recover from a pollutant in which exposure to copper exceeds the recommended criterion. The interim

limitations, however, establish an enforceable ceiling concentration until compliance with the final effluent limitations can be achieved.

18. The Discharger utilizes aluminum based coagulants in its operation. In the *Filter Backwash Recycling Rule Technical Guidance Manual* (EPA 816-R-02-014, December 2002), the USEPA Office of Ground Water and Drinking Water has cited studies that report higher levels of aluminum, attributable to carryover from aluminum coagulants, in spent filter backwash than found in both raw waters and raw waters after chemical addition. The Basin Plan requires the Regional Board to consider information submitted by the Discharger and other interested parties, and numerical criteria and guidelines developed by other agencies and organizations, in determining what numeric limitations will properly implement the narrative toxicity objective. USEPA developed National Recommended Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for aluminum at 87 ug/L as a four-day average (chronic) and 750 ug/L as a one-hour average (acute). USEPA's 2002 National Recommended Water Quality Criteria summary document notes that these criteria were developed at low hardness values. It also states that aluminum is substantially less toxic at higher hardness values, but the effects of hardness on the criteria are not well quantified at this time. In samples collected on 15 April 2003 by the Discharger, hardness in Dry Gulch was very low at 23 mg/L as $CaCO_3$. Aluminum exists as aluminum silicate in suspended clay particles, which USEPA acknowledges might be less toxic than other forms of aluminum. Correspondence with USEPA indicates that the criterion is not intended to apply to aluminum silicate particles. Therefore, a monitoring method that excludes clay particles is likely to be more appropriate. The use of acid-soluble analysis for compliance with the aluminum criterion appears to satisfy USEPA. Current monitoring data is insufficient to determine reasonable potential for aluminum. In accordance with California Water Code Section 13267, this Order establishes monitoring requirements for aluminum. If after review of the monitoring results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and effluent limitations added for aluminum.

19. The Discharger discharges clean or relatively pollutant free waters from well development water, construction dewatering, pump/well testing, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, condensate discharges, other water supply system discharges, and other miscellaneous dewatering/low threat discharges during its normal operation and maintenance activities. These discharges occur at multiple locations and at variable quantity and duration. These discharges are currently required to be regulated by Order No. 5-00-175, General Order for Dewatering and Other Low Threat Discharges to Surface Waters. This Order includes requirements regarding such discharges, and upon adoption of this Order, the Discharger does not need to seek coverage under the General Permit for Dewatering and Other Low Threat Discharges to Surface Waters for these discharges.

20. USEPA promulgated regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The regulations define specific categories of industrial activities that are required to seek coverage under an NPDES permit for storm water discharges associated with industrial activity. If applicable, the Discharger shall seek coverage for discharges of storm water under State Water Resources Control Board Water Quality Order No. 97-03-DWQ (NPDES General Permit No. CAS000001), Waste Discharges Requirements for Discharges of Storm Water Associated with Industrial Activities, or its revision/replacement.

21. The Discharger periodically stockpiles sludge from the settling ponds at the treatment plant site. This sludge must be properly characterized and disposed of in a timely manner. This Order requires that the Discharger develop and implement a Sludge Management and Disposal Plan for the ongoing management of sludge **within 6 months** of the effective date of this Order.

22. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

23. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.

24. This Order requires monitoring for the purposes of assessing compliance with permit limitations and water quality objectives and gathering information to evaluate the need for additional limitations.

25. Section 13267 of the California Water Code states, in part, "(a) A regional board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region" and "(b) (1) In conducting an investigation…, the regional board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." The attached Monitoring and Reporting Program is issued pursuant to California Water Code Section 13267.

26. The Discharger is currently regulated pursuant to Waste Discharge Requirements Order No. 98-124 (NPDES No. CA0080799), adopted by the Regional Board on 5 June 1998.

27. The USEPA and the Regional Board have classified this discharge as a minor discharge.

28. The Regional Board has considered the information in the attached Information Sheet in developing the findings of this Order. The attached Information Sheet and Monitoring and Reporting Program and Attachments A and B are all parts of this Order.

29. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

30. The Regional Board, in a public meeting, has heard and considered all comments pertaining to the discharge.

31. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect 10 days from the date of the final public hearing regarding this Order, provided USEPA has no objections.

IT IS HEREBY ORDERED that Order No. 98-124 is rescinded and the Bella Vista Water District, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of wastewater and low threat discharges, at locations or in a manner different from that described by this Order is prohibited.

2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13 [see attached *Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)*, February 2004].

3. The discharge of untreated wastes from water treatment operations to surface waters is prohibited.

4. The discharge of hazardous or toxic substances, which may include laboratory and water treatment chemicals, solvents, or petroleum products (including oil, grease, gasoline and diesel) to surface waters or groundwater is prohibited.

5. Discharge of hazardous waste, as defined at Title 23, Division 3, Chapter 15, Article 2, Section 2521 of the California Code of Regulations or designated waste, as defined at Section 13173 of the California Water Code, is prohibited.

B. Effluent Limitations

1. Discharge 001

   a. Effluent from Discharge 001 shall not exceed the following limits.

Constituent	Units	AMEL (30-Day Avg)	MDEL (Max Daily)
Settleable Solids	mL/L	0.1	0.2
Suspended Solids	mg/L	30	50
	lbs/day[a]	375	625
Chlorine	mg/L	0.01	0.02
	lbs/day[a]	0.1	0.3
Dichlorobromomethane[b]	µg/L	0.6	1.1
	lbs/day[a]	0.008	0.01
Copper	µg/L	Variable based on water hardness. Must calculate. **See Attachment B**.	
	lbs/day[a,c]		

[a] Based on a design flow through wastewater handling and treatment systems of 1.5 mgd.
[b] Final effluent limitations. Interim effluent limits may supercede as described in this Order.
[c] To calculate lbs/day, multiply ug/L limit by 8.34, then multiply by 1.5 (design flow), then divide by 1000.

   b. The discharge shall not have a pH less than 6.0 nor greater than 9.0.

   c. Survival of aquatic organisms in 96-hour acute bioassays of undiluted waste shall be no less than:

      Minimum for any one bioassay ---------- 70%
      Median for any three or more consecutive bioassays -- 90%

   d. The maximum daily discharge flow shall not exceed 1.5 million gallons.

2. Interim effluent limits are established for the following constituent. This interim limit may supercede the final limit, above, as described in this Order. The interim effluent discharge from Discharge 001 shall not exceed the following limit:

Constituent	Units	Max Daily
Dichlorobromomethane	µg/L	4.7

3. Low Threat Discharges

   a. Low threat discharges shall not exceed the following limits:

Constituents	Units	Monthly Average	Weekly Average	Daily Maximum
Flow[a]	mgd			0.25
Total Suspended Solids	mg/L	10	15	30
Settleable Solids	mL/L			0.1

[a] If greater than four months in duration.

b. Low threat discharges shall not contain chlorine in excess of 0.02 mg/L (instantaneous maximum).

C. Receiving Water Limitations

Receiving water limitations are based upon water quality objectives contained in the Basin Plan, and as such, they are a required part of this permit.

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/L. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation. The Discharger is not required to improve background dissolved oxygen conditions in the receiving water.

2. Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the water surface or on objects in the water, or otherwise adversely affect beneficial uses.

3. Discoloration that causes nuisance or adversely affects beneficial uses.

4. Ambient pH to be depressed below 6.5, nor raised above 8.5, nor changes in normal ambient pH levels to be exceeded by more than 0.5 units.

5. Biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

6. Floating material in amounts that cause nuisance or adversely affect beneficial uses.

7. Suspended sediment load and suspended sediment discharge rate altered in such a manner to cause nuisance or adversely affect beneficial uses.

8. Suspended sediment concentrations that cause nuisance or adversely affect beneficial uses.

9. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

10. The turbidity to increase as follows:

    a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.

    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.

    c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.

    d. More than 10 percent where natural turbidity is greater than 100 NTUs

11. The ambient temperature in the receiving water to increase more than 5° F above natural receiving water temperature.

12. Deposition of material that causes nuisance or adversely affects beneficial uses.

13. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

14. Toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This applies regardless of whether toxicity is caused by a single substance or the interactive effect of multiple substances.

15. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Board pursuant to the CWA and regulations adopted thereunder.

16. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

17. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 mL or cause more than 10 percent of total samples to exceed 400 MPN/100 mL.

18. Upon adoption of any applicable water quality standard for receiving waters by the Regional Board or the State Board pursuant to the CWA or regulations adopted thereunder, this permit may be reopened and receiving water limitations added.

D. Discharge Requirements for Low Threat Discharges

1. The following discharges are authorized by this Order provided they do not contain significant quantities of pollutants, and they do not exceed 0.25 mgd unless four months or less in duration.

    a. Well development water including testing or start up;

    b. Construction dewatering;

    c. Pump/well testing;

    d. Pipeline/tank pressure testing;

    e. Pipeline/tank flushing or dewatering;

    f. Condensate discharges;

    g. Miscellaneous water supply system discharges; and,

    h. Other miscellaneous dewatering/low threat discharges.

2. Collected screenings and other solids removed from piping, tanks, and other equipment prior to discharge shall be disposed of in a manner consistent with Title 23 of the California Code of Regulations Chapter 15, Division 3.

3. The Discharger shall prepare a Pollution Prevention, Monitoring, and Reporting Plan (PPMRP) for Low Threat Discharges, to address all expected discharges. The PPMRP should address or include the following:

    a. The PPMRP shall provide a general description of the raw water supply and distribution systems, types and frequency of potential discharges, potential discharge locations, possible pollutant types, possible flow rates and duration, and receiving waters.

    b. The Plan shall identify best management practices (BMPs) for each type of discharge that will be used to prevent or minimize the discharge of pollutants. Where appropriate, BMPs shall include, but not be limited to the following.

        i. Prior to testing or flushing of empty tanks and pipelines, solid wastes shall be removed for proper disposal.

ii. Erosion and sedimentation control practices at discharge point(s) shall be implemented, if necessary. Discharges shall adhere to applicable State and local recommended procedures for erosion and sediment control.

iii. The discharge of waters must be controlled to the lowest possible rate to minimize potential impacts on aquatic life and to reduce erosion. Adequate dewatering structures and velocity dissipation devices shall be used when necessary to prevent and minimize erosion, stream scouring, increases in turbidity, and any other potential damage to receiving waters. Such devices may include splash pads, straw bales, silt fences, and vegetated buffer zones. The discharge shall not cause downstream flooding conditions.

iv. Discharges shall be conducted to avoid potential pollution to private or public water wells.

v. Dechlorination methods shall be used to assure that discharges to surface waters do not contain a chlorine residual in excess of 0.02 mg/L.

vi. The Discharger shall evaluate the need for treatment of low threat waters before discharge to meet the effluent limitations and requirements of this Order. Possible treatment technologies to evaluate include filtration, settling ponds, and/or pumping to upland areas.

c. Develop a representative sampling and monitoring program

i. The Pollution Prevention, Monitoring, and Reporting Plan for Low Threat Discharges shall include a monitoring schedule for low threat discharges. The plan shall include the following provisions:

- The discharge (rate of flow and duration) shall be estimated for all discharges.

- Sampling and analyses are not required for every dewatering water and other low threat discharge, if the Discharger can provide reasonable assurance that discharges will comply with the prohibitions and limitations of this Order. However, a sampling and analysis program shall be developed and implemented to monitor a representative selection of low threat discharges to verify that the discharges comply with this Order.

- When reasonable assurance cannot be provided that a discharge will comply with the prohibitions and limitations of this Order, at least one sample of the discharge shall be collected per day at a location prior to its entry into a receiving body of water. The sample shall be collected to reflect the character

of the discharge during the first 1,000 gallons of the discharge. This sample shall be analyzed for chlorine and settleable and suspended solids.

- When reasonable assurance cannot be provided that a discharge will comply with the prohibitions and limitations of this Order, and the discharge will be greater than 50,000 gallons, at least two samples shall be collected per day at a location prior to its entry into a receiving body of water. Samples shall be collected to reflect the character of the discharge during the first and last 1,000 gallons of the discharge. These samples shall be analyzed for chlorine and settleable and suspended solids.

- When reasonable assurance cannot be provided that a discharge will comply with the prohibitions and limitations of this Order, observations of the discharge and of the receiving water shall be made and recorded on a daily basis and reflect the worst-case conditions observed in terms of: floating or suspended matter, discoloration and turbidity, erosion, odors, films, sheens, and other potential nuisance conditions.

d. Records and Reporting

i. The Discharger shall make a record of each discharge event. The record shall include: the date, time, location, and duration of the discharge event; source of the water being discharged; a measurement or estimate of the total flow volume; observations as to the appearance of the discharge and erosion that resulted; best management practices that were used; and analyses performed, if any. When analytical results are received, they shall be included in the record.

ii. Analyses and observations shall be recorded and reported to the Regional Board in a timely manner within the monthly Discharge Monitoring Reports. Reporting shall also identify any violations of this Order, corrective action steps taken to comply with the Order, and complaints received from neighbors or other interested parties.

e. The PPMRP shall be revised and updated as necessary to reflect applicable changes in the Discharger's practices.

4. The Discharger shall meet all other requirements and conditions of this Order.

E. Sludge Handling and Disposal

1. Screenings, sludges, and other solids collected and generated on site shall be disposed of in a manner approved by the Regional Board and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste* as set forth in Title 27, Division 2, Subdivision 1 of the California Code of Regulations.

2. Any proposed change in sludge use or disposal practices shall be reported to the Regional Board at least 90 days in advance of the change.

3. **Within 180 days** of the effective date of this Order, the Discharger shall prepare and submit to the Regional Board a Sludge Disposal Plan, which will describe:

   a. Sources and amounts of sludge generated annually.

   b. Location(s) of on site storage and a description of the containment area.

   c. Plans for ultimate disposal. For landfill disposal include the Regional Board's waste discharge requirement numbers that regulate the particular landfill; the present classification of the landfill; and the name and location of the landfill. For land application, include the location of the site; the Regional Board's waste discharge requirement numbers that regulate the site; the anticipated sludge application rate in lbs/acre/year (specify wet or dry); and the land use.

   d. Proposed frequency and time schedule for removing sludge from the site.

F. Ground Water Limitations

1. The discharge shall not cause the underlying groundwater to be degraded.

G. Provisions

1. The Discharger shall comply with *Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)* (February 2004), which are a part of this Order. This attachment and its individual provisions are referred to as "Standard Provisions."

2. The Discharger shall comply with the attached Monitoring and Reporting Program, No. R5-2004-0110, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.

If requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be not later than the submittal date specified in the Monitoring and Reporting Program.

3. If applicable, the Discharger shall comply with the requirements of Division 20, Chapter 6.67 of the Health and Safety Code, known as the Aboveground Petroleum Storage Act. These requirements include preparation of a Spill Prevention Control and Countermeasure Plan in accordance with 40 CFR Part 112.

4. **Bis-2-ethylhexylphthalate Verification**
In order to verify if bis-2-ethylhexylphthalate is truly present in the receiving water or effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant. If changes in sampling and/or analytical procedures and equipment indicate that bis-2-ethylhexylphthalate is not present in the effluent or receiving water samples at concentrations that cause reasonable potential as defined by the SIP, then effluent limits are not necessary. If bis-2-ethylhexylphthalate continues to be detected in the effluent and/or receiving water, then this Order may be reopened and modified by adding an appropriate effluent limitation for bis-2-ethylhexylphthalate.

5. **Dibromochloromethane Interim Effluent Limits and Compliance Time Schedule:**
This Order establishes effluent limitations based on water quality criteria contained in the CTR for dibromochloromethane. The Discharger shall complete and submit justification for interim limits and a compliance time schedule **within 90 days** of the effective date of this Order. Justification for interim limits and a compliance time schedules shall include all of the following items (from Section 2.1 of the SIP):

   a. Documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts;
   b. Documentation of source control and/or pollution minimization efforts currently underway or completed;
   c. A proposed schedule for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and
   d. A demonstration that the proposed schedule is as short as practicable.

   If adequate justification for interim limits and a compliance time schedule is not completed and submitted by the Discharger, then the final effluent limits for dibromochloromethane shall become effective immediately following **90 days** after the effective date of this Order. If adequate justification for interim limits and a compliance time schedules is submitted, then the interim effluent limits will become effective and the final effluent limits shall not become effective until **5 years** after the effective date of this Order. As this compliance time schedule is greater than one

year, the Discharger shall submit annual progress reports by **15 July** of each year until the Discharger achieves compliance with the final effluent limits for dibromochloromethane.

Compliance Time Schedule for Dichlorobromomethane

Task	Compliance Date
1. Identify potential sources by water quality monitoring of raw water, product water at various stages of treatment, and the various wastewater streams.	**12 months** after the effective date of this Order.
2. Prepare a Pollutant Minimization Plan	**2 years** after the effective date of this Order.
3. Implement pollutant minimization measures and evaluate treatment upgrades necessary to achieve compliance with final effluent limitations.	**3 years** after the effective date of this Order.
4. Implement selected operational measures and/or treatment upgrades. Final effluent limitations become effective.	**5 years** after the effective date of this Order.

6. The Discharger shall conduct the monitoring and reporting specified in the attached Monitoring and Reporting Program. If sufficient information is collected and indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numerical water quality standard, then this Order may be reopened to include effluent limit(s) to achieve water quality standards. Additionally, if pollutants are detected in discharges from the Discharger's facility, but insufficient information exists to establish an effluent limit or determine if an effluent limit is necessary, the Discharger may be required to conduct additional monitoring to provide sufficient information.

7. The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order will be reopened and a chronic toxicity limitation and/or limitations for the specific toxicants identified in the TRE shall be included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened.

8. This Order expires on **1 September 2009** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than **180 days** in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.

9. In the event of any change in control or ownership of land or waste discharge facilities, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Board.

   To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the succeeding owner or operator's full legal name; the State of incorporation if a corporation; the name, address, and the telephone number of the persons responsible for contact with the Regional Board; and a statement that the new owner or operator assumes full responsibility for compliance with this Order. The application shall comply with the signatory paragraph of Standard Provision D.6. Continued discharge without submission of a request to transfer shall be considered an unauthorized discharge in violation of the California Water Code. Transfer will be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 10 September 2004.

_____
THOMAS R. PINKOS, Executive Officer

BJS

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

NPDES NO. CA0080799

MONITORING AND REPORTING PROGRAM NO. R5-2004-0110
FOR
BELLA VISTA WATER DISTRICT
WATER TREATMENT PLANT
SHASTA COUNTY

INTRODUCTION

This Monitoring and Reporting Program is issued pursuant to California Water Code Section 13383 and includes: effluent monitoring of discharges to waters of the United States and waters of the State, and receiving water monitoring. All water quality samples shall be representative of the volume and nature of the discharge, or representative of the matrix of material sampled. The time, date, and location of sample collection shall be recorded on a chain of custody (COC) form. COC forms shall be completed for each sample collected and copies provided to the Regional Board with the monthly monitoring reports.

All water quality sampling and analyses shall be performed in accordance with the Monitoring and Reporting Requirements as outlined in the Standard Provisions of this Order. Water quality sample collection, storage, and analyses shall be performed according to 40 CFR Part 136, or other methods approved and specified by the Executive Officer. Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DHS), except when a certified laboratory is not reasonably available to the Discharger, in which case a non-certified laboratory operating in compliance with an approved Quality Assurance-Quality Control program may be used.

EFFLUENT MONITORING

The discharge from the filter backwash settling ponds to the lower pond in Dry Gulch shall be monitored as follows.

Constituent	Units	Type of Sample	Sample Frequency
Flow	mgd		continuous
pH	pH units	Grab	weekly
Turbidity	NTUs	Grab	weekly
Chlorine	mg/L	Grab	weekly
Settleable Solids	mL/L	Grab	2 per month
Suspended Solids	mg/L	Grab	2 per month
Hardness	mg/L	Grab	quarterly
Aluminum	µg/L	Grab	quarterly
Copper	µg/L	Grab	quarterly
Silver	µg/L	Grab	quarterly
Lead	µg/L	Grab	quarterly
Bis-2-ethylhexylphthalate	µg/L	Grab	quarterly

Constituent	Units	Type of Sample	Sample Frequency
Dichlorobromomethane	µg/L	Grab	quarterly
Acute toxicity[1]	TUa	Grab	annually
Chronic Toxicity[2]	TUc	Grab	one time in permit lifecycle
CTR Pollutants[3]	µg/L	24 hr composite	one time in permit lifecycle

[1] Effluent shall be monitored for acute toxicity one time per year in accordance with procedures described below.
[2] Effluent shall be monitored for chronic toxicity one time in the five-year permit lifecycle in accordance with procedures described below.
[3] Samples shall be analyzed for the toxic priority pollutants identified by the California Toxics Rule at 40 CFR 131.38. Effluent samples shall be collected simultaneously with receiving water samples to be analyzed for the CTR pollutants. Monitoring shall be conducted in accordance with procedures described below.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water samples shall be taken from the following stations.

Receiving Water Sampling Stations

Station	Station Description
R-1	Within 50 feet upstream from the lower pond in Dry Gulch, when flow is present.
R-2	Water discharging from the overflow outlet of the lower pond in Dry Gulch, or pond water in the immediate vicinity of the outlet, if overflow is not occurring.

Receiving water samples shall be analyzed according to the following schedule.

Receiving Water Monitoring Schedule

Constituent	Units	Station	Sampling Frequency
CTR Pollutants[1]	µg/L	R-1	one time in permit lifecycle
pH[2]	pH units	R-1, R-2	weekly (depends on effluent)
pH	pH units	R-1	quarterly[3]
Turbidity[4]	NTU	R-1, R-2	weekly (depends on effluent)
Hardness	mg/L	R-1	quarterly[3]

[1] 24-hour composite samples shall be analyzed for the toxic priority pollutants identified by the California Toxics Rule at 40 CFR 131.38. Receiving water samples shall be collected simultaneously with effluent samples to be analyzed for the CTR pollutants. Monitoring shall be conducted in accordance with procedures described below.
[2] When effluent pH monitoring indicates that the pH is less than 6.5 or greater than 8.5 then receiving water pH monitoring shall immediately be performed.
[3] To be collected at the same time as effluent samples during periods when upstream receiving water flow is present.
[4] When effluent turbidity monitoring indicates that the turbidity is greater than 10 NTU then receiving water turbidity monitoring shall immediately be performed.

The Discharger shall observe receiving water conditions once a week throughout the reach bounded by Stations R-1 and R-2 and record observations pertaining to:

- Floating or suspended matter
- Discoloration
- Aquatic life
- Bottom deposits
- Films, sheens, and coatings
- Algae, fungi, and slime growth
- Potential nuisance conditions

ACUTE TOXICITY MONITORING

Acute toxicity of the effluent shall be such that (i) the average survival of rainbow trout in undiluted effluent for any three consecutive 96-hour static renewal tests shall be at least 90 percent, and (ii) no single test producing less than 70 percent survival.

If any acute toxicity bioassay test result is less than 90 percent survival, the Discharger shall conduct six additional tests over a six-week period. The Discharger shall ensure that results of a failing acute toxicity test are received within 24 hours of the completion of the test, and the additional tests shall begin within 3 business days of the receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the Discharger may resume regular testing. If the results of any two of the six accelerated tests are less than 90 percent survival, however, then the Discharger shall begin a Toxicity Identification Evaluation (TIE). The TIE shall include all reasonable steps to identify the source(s) of toxicity. Once the source(s) of toxicity is identified, the Discharger shall take all reasonable steps to reduce the toxicity to meet the objective.

CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA-821-R-02-013*, Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms,* Fourth Edition, October 2002. Effluent, collected at Discharge 001 prior to entry into the lower pond in Dry Gulch, shall be tested for chronic toxicity **one time at least 180 days prior to expiration of this Order**. If undiluted effluent exhibits toxicity, the Discharger shall sample during the next available discharge event and conduct the test using the dilution series specified below. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of sample collection shall be recorded. Dilution and control waters shall be provided by the laboratory or collected from the untreated potable water supply at the facility. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test

acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. The results shall be submitted with the monitoring report and include the following:

Species: Pimephales promelas, Ceriodaphnia dubia, and Selenastrum capricornutum

	Dilutions (%)					Controls	
	100	**75**	**50**	**25**	**12.5**	**Receiving Water**	**Lab Water**
% Discharge Effluent	100	75	50	25	12.5	0	0
% Dilution Water[1]	0	25	50	75	87.5	100	0
% Lab Water	0	0	0	0	0	0	100

[1] Dilution water shall be receiving water from Dry Gulch taken upstream from the lower pond. If the receiving water exhibits toxicity, or if no receiving water is available, the Discharge may be required to use lab water as dilution water. The dilution series may be modified after the initial test upon approval of the Executive Officer.

PRIORITY POLLUTANT MONITORING

The State Implementation Policy (SIP) requires periodic testing for the toxic priority pollutants established by the CTR at 40 CFR 131.38. Prior to expiration of this Order, the Discharger shall conduct one sampling event and analysis for the CTR pollutants in receiving water and effluent. The Discharger is not required to perform asbestos monitoring. Receiving water samples shall be collected simultaneously and analyzed for the CTR pollutants plus pH and hardness. All analyses shall be performed at a laboratory certified by the California Department of Health Services. The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each of the analytes. Laboratory methods and limits shall be as described in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (2000), unless a variance has been approved by the Executive Officer. If, after a review of the monitoring results, it is determined that the discharge causes, has the reasonable potential to cause, or contributes to in-stream excursions above water quality objectives, this Order will be reopened and limitations based on those objectives will be included. Additionally, if pollutants are detected, but insufficient information exists to establish an effluent limit or determine if an effluent limit is necessary, then additional monitoring will be required to provide sufficient information.

All organic analyses shall be by Gas Chromatography/Mass Spectrometry (GCMS), Method 8260B for volatiles and Method 8270C for semi-volatiles. Pesticides shall be analyzed by Method 8081A. Dioxins shall be analyzed by Method 1613/8290. If organic analyses are run by Gas Chromatography (GC) methods, any detectable concentrations are to be confirmed by GCMS. Inorganics shall be analyzed by the following Methods.

Analysis for the dioxin congeners shall be performed as described in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* using High Resolution Mass Spectrometry.

Metals shall be analyzed by the USEPA methods listed below. Alternative analytical procedures may be used with approval by the Regional Board if the alternative method has the same or better detection level than the method listed.

Method Description	**EPA Method**	**Constituents**
Inductively Coupled Plasma/Mass Spectrometry (ICP/MS)	1638	Antimony, Beryllium, Cadmium, Copper, Lead, Nickel, Selenium, Silver, Thallium, Total Chromium, Zinc
Cold Vapor Atomic Absorption (CVAA)	1631	Mercury
Gaseous Hydride Atomic Absorption (HYDRIDE)	206.3	Arsenic
Flame Atomic Absorption (FAA)	218.4	Chromium VI
Colorimetric	335./ 2 or 3	Cyanide

The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each constituent. The MDL should be as close as practicable to the U.S. EPA MDL determined by the procedure found in 40 CFR Part 136. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory.

b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration." Numerical estimates of data quality may be by percent accuracy (+ or – a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

LOW THREAT DISCHARGES

The Discharger shall implement the sampling and monitoring requirements within its Pollution Prevention and Monitoring and Reporting Program, as described in this Order.

SLUDGE MONITORING

Within 180 days from the effective date of this Order and each **15 July thereafter**, the Discharger shall submit a sludge disposal plan, which shall include the following:

1. Estimate of average annual sludge production in dry tons and percent solids.

1. Description of sludge storage and alternative uses (if applicable) to disposal.

2. A description of disposal methods.

    a. For **landfill disposal**, include: (1) the Board's waste discharge requirements numbers that regulate the landfill(s) used; (2) the present classifications of the landfill(s) used; and (3) the names and locations of the facilities receiving sludge.

    b. For **land application**, include: (1) the location of the site(s); (2) the Board's waste discharge requirements numbers that regulate the site(s), if applicable; (3) the application rate in lbs/acre/year (specify wet or dry); and (4) subsequent uses of the land.

    c. For **incineration**, include: (1) the names and locations of the site(s) where sludge incineration occurs; (2) the Board's waste discharge requirements numbers that regulate the site(s); (3) the ash disposal method; and (4) the names and locations of facilities receiving ash (if applicable).

3. A representative characterization of sludge quality including sludge percent solids and quantitative results of chemical analyses for the Title 22 metals.

4. Status and proposed time schedule for disposal of sludge described below.

    a. Water treatment plant sludge – west pond.
    b. Water treatment plant sludge – east pond.
    c. Stockpiled water treatment plant sludge.
    d. Individual well sites sludge (from holding tanks).

REPORTING

Monitoring reports shall be submitted to the Regional Board by the **1st day of the second month** following sample collection (e.g., the January report is due by 1 March). Any quarterly or annual monitoring results shall be submitted by the **1st day of the second month** following each calendar quarter and year, respectively.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with the waste discharge requirements.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By 1 February of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, certificate grades, and general responsibilities of all persons employed at the water treatment plant (Standard Provision A.5).

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A statement certifying when the flow meter and other monitoring instruments and devices used to comply with this permit were last calibrated, including identification of the person performing the calibration (Standard Provision C.6).

The Discharger may also be requested to submit an annual report to the Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provisions D.6.

The Discharger shall implement the Monitoring and Reporting Program beginning on the effective date of this Order.

Ordered by:_____
THOMAS R. PINKOS, Executive Officer

10 September 2004

INFORMATION SHEET

ORDER NO. R5-2004-0110
BELLA VISTA WATER DISTRICT
WATER TREATMENT PLANT
SHASTA COUNTY

GENERAL INFORMATION

The Bella Vista Water District (hereafter, the Discharger) submitted an Application/Report of Waste Discharge dated 13 May 2003 and applied to renew its permit to discharge treated wastewater under the National Pollutant Discharge Elimination System (NPDES) from the Bella Vista Water Treatment Plant. The Discharger is currently regulated pursuant to Waste Discharge Requirements Order No. 98-124 (NPDES No. CA0080799), adopted by the Regional Water Quality Control Board (Regional Board) on 5 June 1998.

The Discharger owns and operates a water treatment plant (WTP), which provides treated water for domestic, municipal, and agricultural purposes. The facility is located in Section 29, Township 32 North, and Range 4 West of the Mt. Diablo Base Line and Meridian on Assessor's Parcel No. 117-290-05 and discharges treated wastewater to Dry Gulch, which, in succeeding order, is tributary to Boulder Creek, Churn Creek, and the Sacramento River – all waters of the United States.

The WTP chlorinates raw water from the Sacramento River and pumps it approximately one mile to the treatment facility, where an aluminum based coagulant is added ahead of multi-media pressure filters. The facility produces as little as 1 million gallons per day (mgd) of treated water in the winter and up to 45 mgd in the summer. If necessary during the irrigation season, the surface supply is augmented with groundwater from five wells, which are connected directly to the District's distribution system. At the WTP, filter backwash is discharged to two unlined settling ponds that overflow to a lower pond, which is located within Dry Gulch, and which appears to retain local, natural and artificial surface drainage in addition to wastewater from the WTP. The outfall to waters of the United States from the WTP, recognized by Order No. 98-124, was the lower pond overflow at the east end of the lower pond. This discharge location, for the purposes of compliance determination, has been changed in this Order, as discussed below. Sludge has periodically been scraped and stockpiled in the settling ponds for the last approximately 12 years. The Discharger is currently arranging for characterization and disposal of this stockpiled sludge. The Discharger has stated that future sludge management will include characterization and disposal of sludge approximately every two years. The design capacity of wastewater handling and treatment facilities is 1.5 mgd.

As needed, depending on potable water demand and available supply, wells are brought on-line, and untreated groundwater is periodically "run to waste" for a short duration upon start up. Groundwater from the wells is chlorinated and filtered for iron and manganese removal. Filter backwash is discharged to on-site holding/settling tanks where clarified backwash water is returned to the front of the filters. Sludge from the settling tanks is periodically characterized and disposed at an appropriate facility.

The WTP is in the Enterprise Flat Hydrologic Area (No. 508.16), as depicted on interagency hydrologic maps prepared by the California Department of Water Resources in August 1986. The mean annual rainfall in the area is approximately 35 inches.

BENEFICIAL USES

Surface Water

The Regional Board adopted a *Water Quality Control Plan*, *Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and describes an implementation program and policies to achieve water quality objectives for all waters of the Basin. This includes plans and policies adopted by the State Water Resources Control Board (State Board) and incorporated by reference, such as Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California. These requirements implement the Basin Plan.

The Basin Plan on page II-2.00 states that: "Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams." The beneficial uses of the Sacramento River are specifically identified in the Basin Plan, however, the beneficial uses of Dry Gulch, Boulder Creek, and Churn Creek are not individually identified in the Basin Plan. Dry Gulch, Boulder Creek, and Churn Creek are tributary to the Sacramento River between Shasta Dam and the Colusa Basin Drain, and therefore, in accordance with the Basin Plan, the beneficial uses of the Sacramento River are applicable to these tributary streams. The Basin Plan identifies the following beneficial uses for the Sacramento River: municipal and domestic supply; agricultural supply; industrial service supply; hydropower generation; water contact and noncontact recreation; warm and cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; navigation; ground water recharge; and freshwater replenishment. In addition, State Board Resolution 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution 89-056, requires the Regional Board to assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in Table II-1.

Upon review of the flow conditions, habitat values, and beneficial uses of Churn Creek and its tributaries (including Dry Gulch and Boulder Creek), the Regional Board finds that the beneficial uses identified in the Basin Plan for the Sacramento River are applicable to Churn Creek and its tributaries. The Basin Plan defines beneficial uses and with respect to disposal of wastewaters states that "...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses." The Regional Board finds that the beneficial uses identified in the Basin Plan for the Sacramento River are applicable to Churn Creek and its tributaries based upon the following facts:

a. *Municipal and Domestic Supply, Agricultural Supply, Industrial Service Supply*

The State Board has issued water rights to existing water users along Churn Creek and its tributaries and the Sacramento River downstream of the discharge for multiple uses including domestic, agricultural, and industrial service supply. Because Churn Creek and its tributaries are intermittent streams, the creeks likely provide groundwater recharge during periods of low flow. Domestic water supply in the area is generally provided by municipal entities using treated surface water. Although the use of area groundwater as domestic supply is limited, the potential for expanded use exists. In addition to the existing water uses, growth in the area downstream of the discharge is expected to continue, which presents a potential for increased domestic, agricultural, and industrial uses of groundwater and the water in Churn Creek and its tributaries.

b. *Hydropower Generation, and Navigation*

Although no records of existing hydropower generation and navigation uses were found on Churn Creek and its tributaries, these uses do exist in the Sacramento River to which Churn Creek is tributary. The very nature of these uses depends on the presence of flow from tributary streams and therefore these uses are protected by including them as beneficial uses in streams tributary to the Sacramento River. Furthermore, considering the likely future value of electricity generation, it is not unreasonable to expect that new technologies for small hydropower projects may make hydropower generation uses on Churn Creek and its tributaries desirable.

c. *Water Contact and Noncontact Recreation*

The Regional Board finds that the Churn Creek and its tributaries flow through rural and residential areas and that there is ready public access. Contact and noncontact recreational activities exist and are likely to increase as the population in the area grows. Prior to discharge into the Sacramento River, Churn Creek and its tributaries flow through areas of general public access. The Sacramento River also offers many recreational opportunities.

d. *Warm and Cold Freshwater Habitat, Migration of Aquatic Organisms, Spawning, Reproduction, and/or Early Development, and Wildlife Habitat*

Churn Creek and its tributaries flow to the Sacramento River. Fish species present in Churn Creek and its tributaries are consistent with both cold and warm water fisheries. There is a potential for anadromous fish migration necessitating a cold water designation and cold water salmonid species have been found in Churn Creek and its tributaries. The Basin Plan (Table II-1) designates the Sacramento River from Shasta Dam to Colusa Basin Drain as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Churn Creek and its tributaries.

The cold water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L. The riparian areas along Churn Creek and its tributaries support wildlife habitat.

e. *Groundwater Recharge, and Freshwater Replenishment*

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since Churn Creek and its tributaries are at times dry, it is reasonable to assume that the stream flow is not present at its source, or the water is lost by evaporation, flow downstream, and percolation to groundwater providing a source of municipal and irrigation water supply. When water is present in Churn Creek and its tributaries, there is hydraulic continuity between it and the Sacramento River. During periods of hydraulic continuity, Churn Creek and its tributaries add to the water quantity and may impact the quality of water flowing down stream in the Sacramento River.

Groundwater

Unless designated otherwise by the Regional Board, the beneficial uses of groundwater of the Central Valley Region are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

Anti-Degradation

Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California, requires the Regional Board, in regulating the discharge of waste, to maintain high quality in surface and groundwaters of the State unless it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (i.e., in no circumstances can this Order allow water quality to exceed the Regional Board's water quality objectives). The Regional Board finds that the discharge, as restricted by the prohibitions, limitations, specifications, and provisions of this Order, is consistent with Resolution No. 68-16. The impact on water quality will be insignificant.

TMDLs and 303(d) Listings

Section 303(d) of the CWA requires states to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations by point sources. For all 303(d) - listed water bodies and pollutants, the State Board is required to develop and adopt Total Maximum Daily Loads (TMDLs) that will specify wasteload allocations for point sources and load allocations for non-point sources, as appropriate.
The United States Environmental Protection Agency (USEPA) has approved the State Board's 2002 303(d) list of impaired water bodies. This extensive list does not include Dry Gulch, Boulder Creek, or Churn Creek; however, the Sacramento River from Keswick Dam to Cottonwood Creek is listed as impaired for unknown toxicity. A TMDL has not been prepared for this segment of the Sacramento

River.

GROUNDWATER MONITORING

This Order does not require the Discharger to conduct groundwater monitoring. There is no current evidence to indicate that discharges from the facility pose a threat to groundwater quality. If information becomes available indicating adverse groundwater impacts attributable to discharges associated with the Discharger's activity, a groundwater investigation and subsequent monitoring may be required.

REASONABLE POTENTIAL ANALYSIS

USEPA regulations at 40 CFR 122.4 (d) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numerical water quality standard. The National Toxics Rule (NTR) establishes water quality criteria for toxic pollutants applicable to the Discharger at 40 CFR Part 131.36. On May 18, 2000, water quality criteria of the NTR were supplemented by criteria of the California Toxics Rule (CTR) at 40 CFR 131.38. The NTR, CTR, and the Basin Plan contain water quality standards and objectives applicable to the discharge.

The State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP), which contains guidance on implementation of the CTR, including the determination of reasonable potential for CTR pollutants. To determine reasonable potential for non-CTR pollutants, the Regional Board relies on methodology presented in USEPA's *Technical Support Document for Water Quality Based Toxics Control* (TSD) (EPA/505/2-90-001, 1991). And, for interpretation of narrative water quality objectives, the Regional Board uses as a resource its *Compilation of Water Quality Goals* (2000).

On 20 May 2002 and 15 April 2003, the Discharger collected effluent and receiving water samples for analyses of the CTR toxic priority pollutants. Analyses were performed for volatile and semi-volatile substances, metals, 2,3,7,8-TCDD dioxin, and sixteen other dioxin congeners and reported in accordance with procedures established by the SIP.

Methodology described in Section 1.3 of the SIP was used to evaluate the Discharger's monitoring data for the CTR priority toxic pollutants. No credit for dilution of the effluent with the receiving water was considered. Copper and dichlorobromomethane were detected at concentrations that may cause or contribute to an in-stream excursion above a numerical water quality standard or objective of the CTR or of the Basin Plan; and therefore, water quality based effluent limitations (WQBELs) for these pollutants are included in this Order. Lead, silver, and bis-2-ethylhexylphthalate were detected in the receiving water, but insufficient information exists at this time to determine if an effluent limit is necessary for these pollutants. This Order requires monitoring to provide sufficient

information to determine if effluent limits are necessary for these pollutants. Lead, silver, and bis-2-ethylhexylphthalate were not detected in the effluent.

The following table summarizes the monitoring data for these constituents and the applicable water quality criteria or objectives.

Pollutant	Most Stringent CTR Water Quality Criteria	Most Stringent Basin Plan Water Quality Objective	Maximum Observed Receiving Water or Effluent Concentration (Date Sampled)
Copper	2.6 µg/L (dissolved) chronic criterion for protection of aquatic life at 23 mg/L hardness as $CaCO_3$.	3.4 µg/L (dissolved), acute objective for the Sacramento River and its tributaries above State Hwy 32 bridge at Hamilton City, at 23 mg/L hardness as $CaCO_3$.	3.1 and 2.8 µg/L (total recoverable) receiving water and effluent, respectively, on 20 May 2002.
Lead	0.5 ug/L chronic and 12.6 µg/L acute criteria (dissolved) for protection of aquatic life at 23 mg/L hardness as $CaCO_3$.	15 µg/L (dissolved), acute objective for specific chemical constituents in waters designated as MUN. Independent of hardness.	0.8 µg/L (total recoverable) receiving water only, on 20 May 2002.
Silver	0.28 µg/L (dissolved) acute criterion for protection of aquatic life at 23 mg/L hardness as $CaCO_3$.	10 µg/L (dissolved), acute objective for the Sacramento River from Keswick Dam to the I Street Bridge in Sacramento. Independent of hardness.	0.58 µg/L (total recoverable) receiving water only, on 15 April 2003.
Bis-2-Ethylhexyl-phthalate	1.8 µg/L (CTR human health criteria for consumption of water and organisms)	4 µg/L (MCL from Title 22, Division 4, Chapter 15, Section 64444 of the California Code of Regulations)	2 µg/L receiving water only, on 15 April 2003.
Dichlorobromom ethane	0.56 µg/L (CTR human health criteria for consumption of water and organisms)	No chemical-specific objective.	1.5 µg/L effluent, on 20 May 2002.

OUTFALL LOCATION/POINT OF COMPLIANCE

This Order changes the point of compliance (Discharge 001) for treated wastewater discharged into waters of the State and the United States. Previously, Discharge 001, as recognized by Order No. 98-124, had been located at the outfall from the lower pond located on Dry Gulch. Because this pond also receives natural and artificial surface drainage from the upstream land area not controlled by the Discharger, the Regional Board has determined that discharges from the lower pond are not fully representative of discharges from the Bella Vista Water Treatment Plant. This Order establishes Discharge 001 as the point where overflow from the two wastewater settling ponds is merged, and enters into the lower pond. Finding No. 2 of this Order identifies the new outfall location by latitude and longitude. This change in compliance point was made by agreement

between the Discharger and the Regional Board to give the Discharger more direct control in maintaining compliance with this Order.

RECEIVING WATER MONITORING LOCATIONS

As discussed above, this Order establishes Discharge 001 as the mixed discharge from the upper settling ponds just before it enters the lower pond in Dry Gulch. Receiving water monitoring station R-1 shall be at the point upstream flow in Dry Gulch enters the lower pond. As the upstream flow in Dry Gulch is intermittent, R-1 sampling and observation can only occur when the upstream flow is present. Receiving water monitoring station R-2 shall be at the overflow from the lower pond into the downstream section of Dry Gulch. As the pond overflow is intermittent, R-2 sampling and observation can only occur when the pond is discharging over the overflow structure. The Discharger shall coordinate sampling and observation events to when upstream and downstream flow is present in Dry Gulch, when possible, while still meeting the monitoring and observation frequencies specified in the attached Monitoring and Reporting Program.

LOW THREAT DISCHARGES

In addition to regulating discharges of settled water treatment plant filter backwash, this Order also regulates the discharge of low threat wastewaters. Low threat wastewaters include well development water, construction dewatering, pump/well testing, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, condensate discharges, unspecified water supply system discharges and other miscellaneous dewatering/low threat discharges. Previously, the Discharger was required to seek permit coverage under General Waste Discharge Requirements Order No. 5-00-175 for such discharges. Pursuant to Section C of this Order, the Discharger must prepare and implement an acceptable Pollution Prevention and Monitoring and Reporting Program (PPMRP) in order to have permit coverage for low threat discharges under this Order.

RECEIVING WATER DILUTION CREDIT/MIXING ZONE CONSIDERATION

In determining effluent limits as described below, no credit for dilution of the effluent with the receiving water was granted. Effluent is discharged to Dry Gulch tributary to Boulder Creek, tributary to Churn Creek all of which have intermittent flow. As flow upstream of the discharge does not exist for extended periods of time, a dilution allowance or mixing zone would not be protective of receiving water beneficial uses and water quality standards or objectives could be exceeded. Therefore, all effluent limits are based on the discharge meeting water quality criteria and objectives at the point of discharge, before the effluent enters the receiving water ("end of pipe").

BASIS FOR PERMIT REQUIREMENTS

There are no technology-based, effluent limitations guidelines established for potable water treatment plants pursuant to Section 301 of the Clean Water Act.

Discharge Prohibitions

Prohibitions on bypass, discharge of hazardous and designated waste, and discharges that are not specifically described are retained from Order No. 98-124 and are consistent with objectives of the Basin Plan, as required by the California Water Code and the Clean Water Act, to protect the beneficial uses of waters of the State.

Effluent Limitations (Discharge 001) for Toxics

Dilution Considerations for Effluent Limit Calculations. As explained above, in determining effluent limits, no credit for effluent dilution by the receiving water has been granted. Effluent limits, therefore, have been established to attain all applicable water quality criteria/objectives at the point of discharge.

Calculation of Final and Interim Effluent Limits for Priority Pollutants. The Regional Board has performed a reasonable potential analysis to determine what priority pollutants are discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numerical water quality standard. Copper and dichlorobromomethane were present in the effluent at concentrations that, in accordance with methodology of the SIP, may cause or contribute to an in-stream excursion above a narrative or numerical water quality criterion or objective. Lead, silver, and bis-2-ethylhexylphthalate were present in receiving water samples at concentrations above a narrative or numerical water quality criterion or objective. Effluent limits are being established for copper, and dichlorobromomethane. Additional monitoring is required for lead, silver, and bis-2-ethylhexylphthalate to determine if effluent limits need to be established.

Copper

Hardness. The toxicity of certain metals, including copper, increases with decreasing water hardness concentrations. On 15 April 2003, hardness in the receiving water was measured at 23 mg/L as $CaCO_3$, and this figure has been used to determine reasonable potential.

Translator. USEPA regulations at 40 CFR 122.45 (c) require effluent limitations for metals to be expressed as total recoverable metal, and therefore, attention must be given to ensure that analytical data and water quality standards for metals are expressed accordingly. Appendix 3 of the SIP provides conversion factors (CFs) or translators, for certain metals including copper, to convert total recoverable concentrations to dissolved concentrations and vice versa. The CF for copper is 0.960 for both acute and chronic freshwater criteria.

Water Quality Criteria or Objective and Calculation of Effluent Limitations. The CTR chronic criterion for copper for the protection of aquatic life is 2.6 µg/L, expressed as dissolved metal (dissolved), at a receiving water hardness of 23 mg/L as $CaCO_3$. Table III-1 of the Basin Plan also

includes an acute water quality objective for copper of 3.4 µg/L (dissolved) at a receiving water hardness of 23 mg/L as $CaCO_3$. The Regional Board has determined that the applicable water quality standards in these circumstances are the chronic and acute criterion and objective from the CTR and the Basin Plan, respectively.

For each water quality standard, an effluent concentration allowance (ECA) is calculated from the following equation to account for dilution and background levels of each pollutant.

> ECA = C + D (C – B), where C is the water quality criterion, D is the dilution credit, and B is the ambient background concentration. The ECA is also converted to total recoverable metal using the translator, as appropriate.

Because no credit for dilution is being allowed, D equals zero, and the ECA equals C. Here, $ECA_{chronic}$ = 2.7 µg/L and ECA_{acute} = 3.6 µg/L (total recoverable metal) at a water hardness of 23 mg/L as $CaCO_3$.

For each ECA based on an aquatic life criterion, the long-term average discharge condition (LTA) is determined by multiplying the ECA times a multiplier, taken from Table 1 of the SIP, to account for effluent variability. LTA multipliers are determined based on a coefficient of variation (CV) and on a specified probability of occurrence. The CV is a measure of the relative variations of a set of data; and in the RPA for this facility, because there were fewer than 10 data points, the CV was set equal to a default value of 0.6. The ECA multipliers for calculating LTAs at the 99th percentile occurrence probability for copper are 0.321 (acute multiplier) and 0.527 (chronic multiplier). Here, $LTA_{chronic}$ = 1.4 µg/L, and LTA_{acute} = 1.1 µg/L (total recoverable metal) at a water hardness of 23 mg/L as $CaCO_3$.

Average monthly effluent limitations (AMELs) and maximum daily effluent limitations (MDELs) are calculated by multiplying the most limiting LTA times a multiplier that accounts for averaging periods and exceedance frequencies of the effluent limitations, and for the AMEL, the effluent monitoring frequency. Here, the most limiting LTA is the LTA_{acute}, which is derived from the acute criterion from Table III-1 of the Basin Plan. The CV was set equal to 0.6 and the sampling frequency was set equal to 4. A 99th percentile occurrence probability was used to determine the MDEL multiplier and a 95th percentile occurrence probability was used to determine the AMEL multiplier. From Table 2 of the SIP, the MDEL multiplier is 3.11, and the AMEL multiplier is 1.55. Final WQBELs for copper, derived from the acute criterion of the Basin Plan are:

AMEL = 1.8 µg/L (total recoverable) at a water hardness of 23 mg/L as $CaCO_3$.
MDEL = 3.5 µg/L (total recoverable) at a water hardness of 23 mg/L as $CaCO_3$.

The final AMEL and MDEL are water hardness dependent, and therefore the AMEL and MDEL used for compliance determination are variable and must be calculated. Attachment B – Copper includes a pre-calculated table of copper AMELs and MDELs for various water hardness values.

In accordance with the Regional Board's *Policy for Application of Water Quality Objectives*, presented in Chapter IV of the Basin Plan, schedules for compliance with final effluent limitations, which are based on water quality criteria adopted before 25 September 1995, cannot be authorized. Here, as final effluent limitations for copper are based on water quality criteria of the Basin Plan adopted before 25 September 1995, a compliance schedule and interim limits have not been considered, and final limitations for copper will become immediately effective upon adoption of this Order. However, the Regional Board may adopt other Orders, such as a Cease and Desist Order, allowing the Discharger a period of time to fully comply with the effluent limit for copper.

Dichlorobromomethane

Water Quality Criteria or Objective. The most stringent applicable water quality criterion for dichlorobromomethane is the CTR human health criteria for consumption of water and organisms of 0.56 µg/L. No dilution allowance is being granted, and therefore, the ECA is equal to the water quality criterion or objective. In this case the ECA is equal to 0.56 µg/L.

Effluent Limit Calculation. Using methodology of the SIP, a coefficient of variation of 0.6 is appropriate, when the number of effluent data points is less than ten. For CTR human health criteria, the AMEL is equal to the ECA, and the MDEL is equal to the ECA multiplied by the MDEL/AMEL multiplier (2.01) from Table 2 of the SIP.

AMEL = 0.6 µg/L
MDEL = 1.1 µg/L

Compliance Time Schedule for Dichlorobromomethane. Section 2.1 of the SIP allows the Regional Board to establish interim effluent limitations and compliance time schedules when a discharger demonstrates that it is infeasible to achieve immediate compliance with an effluent limitation based on a CTR criterion. Before interim effluent limitations and compliance time schedules can be authorized, the Discharger must submit to the Regional Board: (a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable. This Order requires the Discharger to provide such documentation for dichlorobromomethane **within 90 days** of adoption of this Order in order to justify a compliance time schedule. Within **24 months** of adoption of this Order, the Discharger shall submit a workplan for reducing the concentration of dichlorobromomethane in the discharge to levels that will comply with the final effluent limits. An annual progress report documenting progress toward compliance with the final effluent limits shall be submitted **by 15 July each year** until full compliance is achieved. The Discharger must take such actions necessary to comply with the final effluent limits **within 5 years** of adoption of this Order, at which time the final effluent limits will become fully applicable. If an adequate time

schedule justification is not received as described above, then the interim effluent limits will not apply and the final effluent limits will become immediately applicable.

Calculation of Interim Limit for Dichlorobromomethane. Section 2.2.1 of the SIP requires, if a compliance time schedule is granted for a CTR pollutant, that the Regional Board establish interim limitations and dates for their achievement in the NPDES permit. Interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent; and they must include interim compliance dates separated by no more than one year. Here, interim limitations for dichlorobromomethane are based on current treatment plant performance, or 1.5 µg/L, which is the maximum concentration of dichlorobromomethane observed in the WTP's effluent to date. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations would be established as the mean plus 3.3 standard deviations of the available data. Where actual sampling shows an exceedance of the 3.3-standard deviation interim limit, the maximum detected concentration would be established as the interim limitation. When there are fewer than ten sampling data points available, as is the case for the Bella Vista water treatment plant, the TSD recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed sampling point to obtain the daily maximum interim limitation (*TSD, Table 5-2*). The MDEL interim limitation for dichlorobromomethane is 4.7 µg/L (1.5 µg/L x 3.11).

Verification of Presence of Bis-2-Ethylhexylphthalate

Bis-2-ethylhexylphthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and it is therefore possible that the contaminant is not truly present in the receiving water or effluent discharge. This Order requires the Discharger to take steps to assure that sampling containers and apparatus are not the source of this contaminant. If changes in sampling and/or analytical procedures and equipment indicate that bis-2-ethylhexylphthalate is not actually present in the effluent or receiving water samples at concentrations that trigger reasonable potential according to the SIP, then effluent limits are not necessary. If bis-2-ethylhexylphthalate continues to be detected in the effluent and/or receiving water, then this Order may be reopened and modified to include an appropriate effluent limitation for bis-2-ethylhexylphthalate.

Effluent Limitations (Discharge 001) for Other Parameters

Settleable Solids

The Basin Plan includes a water quality objective that receiving waters not contain settleable material in concentrations that result in its deposition to cause nuisance or adversely affect beneficial uses. From Order No. 98-124, this Order retains monthly average and daily maximum limitations for settleable solids of 0.1 ml/L and 0.2 ml/L, respectively. These limitations reflect removal efficiencies for properly designed, constructed and operated wastewater treatment systems.

Suspended Solids

The Basin Plan includes a water quality objective that receiving waters not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses. This Order contains average monthly and daily maximum limitations for suspended solids of 30 and 50 mg/L, respectively. The Regional Board has determined that suspended solids are more likely to be resuspended than settleable solids in the wastewater settling ponds before discharge, and therefore, suspended solids concentrations are more likely to vary in the discharge than concentrations of settleable solids.

To establish limitations for suspended solids, the Regional Board has examined several general permits, which regulate wastewater discharges from water treatment plants. A summary of these suspended solids limitations is presented in the table, below.

TSS Effluent Limitations of General Permits

	Effluent Limitation		
	30 Day Average (mg/L)	**7 Day Average (mg/L)**	**Maximum Daily (mg/L)**
Washington	Settleable solids, not TSS, is limited		
California Regional Board 2	30	45	NL
West Virginia	30	NL	60
South Carolina	30	NL	60
Arkansas	20	NL	30
Massachusetts	30	NL	50
New Hampshire	20	NL	50

NL = no limit

The Regional Board has also relied on research performed for the USEPA in 1987. (SAIC, Model Permit Package for the Water Supply Industry, EPA Contract No. 68-01-7043) This study found that 76 percent of WTPs surveyed used sedimentation lagoons for wastewater treatment. In these facilities, limitations of 30 mg/L and 45 mg/L were representative of the, then, current permitting practice for average monthly and daily maximum TSS limits, respectively. Analysis of actual monitoring data from these facilities showed the 95th percent occurrence (monthly average) and 99th

percent occurrence (daily maximum) levels of treatment to be 28.1 mg/L and 44.4 mg/L, respectively. The study recommended limitations of 30 mg/l and 45 mg/L as the monthly average and daily maximum suspended solids limits for a model NPDES permit.

Using best professional pursuant to Section 402 (a) (1) (b) of the Clean Water Act, the Regional Board is establishing average monthly and daily maximum, technology based limitations for suspended solids limits of 30 and 50 mg/L, respectively.

pH

This Order requires effluent pH to remain between 6.0 and 9.0 units. These limits are not changed from Order No. 98-124. However, if the effluent pH is measured at less than 6.5 or greater than 8.5, then receiving water monitoring shall be performed to demonstrate that the discharge does not cause the receiving water pH to be less than 6.5 or greater than 8.5.

Chlorine

The Basin Plan includes a narrative water quality objective for toxicity that requires all receiving waters to be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. To interpret narrative criteria, the Regional Board relies on its *Compilation of Water Quality Goals* (2000), which includes USEPA recommended, chronic and acute criteria for chlorine for protection of aquatic life of 11 and 19 µg/L, respectively. Because chlorine is not addressed by the CTR, the Regional Board has followed methodology from the *Technical Support Document for Water Quality Based Toxics Control* (TSD) (EPA/505/2-90-001) (1991) to determine effluent limitations for chlorine.

For chlorine, waste load allocations (WLAs) are determined from the applicable water quality criteria. The WLA addresses variability in effluent quality and is expressed as a single level of receiving water quality necessary to provide protection against long term or chronic effects. When no credit is provided for dilution and background data are not available, the WLA is set equal to the applicable water quality criterion (C). Here, the applicable water quality criteria for chlorine are 11 and 19 µg/L, and the WLAs are equal to the criteria. The long-term average discharge conditions (LTAs) are determined by multiplying the WLA by a multiplier to account for effluent variability. From Table 5-1 of the TSD, at the 99th percentile probability basis, the acute WLA multiplier is 0.321 and the chronic WLA multiplier is 0.527. The WLAs, WLA multipliers, and the LTAs for chlorine are summarized as follows.

	WLA		WLA Multiplier		**LTA (µg/L)**	
	Acute	**Chronic**	**Acute**	**Chronic**	**Acute**	**Chronic**
Chlorine	19	11	0.321	0.527	6.1	6.0

AMELs and MDELs are calculated by multiplying the most limiting (lowest) LTA times a multiplier that accounts for averaging periods, exceedance frequencies of the effluent limitations, and the effluent monitoring frequency. Here, the CV was set equal to 0.6 (CV = 0.6) and, in the case of the AMEL, the sampling frequency was set equal to 4 (n = 4). A 99th percentile occurrence

probability was used to determine the MDEL multiplier and a 95th percentile occurrence probability was used to determine the AMEL multiplier. From Table 5-2 of the TSD, the MDEL multiplier is 3.11, and the AMEL multiplier is 1.55. Final WQBELs for chlorine are determined as follows.

	LTA	MDEL Multiplier	AMEL Multiplier	MDEL (mg/L)	AMEL (mg/L)
Chlorine	6.0	3.11	1.55	0.02	0.01

The daily maximum limitation for chlorine is retained from the previous Order; and the new Order is proposing to add an average monthly limitation for chlorine of 0.01 mg/L.

Requirements for Low Threat Discharges

Currently, the Discharger is obligated to seek authorization under Regional Board Order No. 5-00-175, *General Order for Dewatering and Other Low Threat Discharges to Surface Waters*, prior to discharging non-backwash waters such as well development water, construction dewatering, pump/well testing, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, condensate discharges, miscellaneous other water supply system discharges, and other miscellaneous dewatering/low threat discharges. Requirements in this Order pertaining to such discharges are meant to authorize and regulate such low threat discharges so that the Discharger is no longer obligated to seek coverage under the General Permit.

Storm Water Management

USEPA regulations require coverage under an NPDES permit for facilities that discharge storm water associated with industrial activity. This Order does not address discharges of storm water, and therefore, the Discharger must seek coverage for discharges of storm water under State Water Resources Control Board Water Quality Order No. 97-03-DWQ (NPDES General Permit No. CAS000001), Waste Discharges Requirements for Discharges of Storm Water Associated with Industrial Activities, if applicable.

Sludge Handling and Disposal

This Order requires the Discharger to develop and implement a Sludge Disposal Plan to assure proper handling and disposal of solids that are collected and/or generated at the water treatment plant.

Ground Water Limitations

This Order does not require the Discharger to conduct groundwater monitoring. There is no current evidence to indicate that storm water discharges or operation of the settling ponds pose a threat to groundwater quality. If any information becomes available indicating adverse groundwater impacts, a groundwater investigation and subsequent monitoring may be required.

Establishment of Mass-Based Effluent Limits and Effluent Flow Limit

This Order establishes concentration-based and mass-based effluent limits. The mass-based effluent limits are calculated using the concentration-based limits and the maximum permitted effluent flow rate for the facility (1.5 mgd). If the maximum design effluent flow rate for the facility changes, the Discharger must report the change to the Regional Board so that mass-based effluent limits can be recalculated.

Permit Reopener

If after a review of any monitoring results, it is determined that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above water quality objectives, this Order may be reopened and limitations based on those objectives included. Additionally, if pollutants are detected in discharges from the Discharger's facility, but insufficient information exists to establish an effluent limit or determine if an effluent limit is necessary, then additional monitoring will be required to provide sufficient information.

The Discharger may conduct studies pertaining to facility operations, the effluent discharge, and the receiving water. For example, such studies may include a site-specific metals translator study, or a mixing zone and dilution study. If requested, the Regional Board will review such studies and if warranted, will reopen this permit to make appropriate changes.

BASIS FOR MONITORING REQUIREMENTS

Section 308 of the CWA and USEPA regulation 40 CFR 122.44 (i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. The Discharger is responsible for conducting monitoring and for reporting the results to the Regional Board. The self-monitoring program requires monitoring of receiving water and effluent, storm water, sludge, and low threat discharges.

The Monitoring and Reporting Program eliminates monitoring of receiving water for pH and turbidity; however, it requires visual monitoring of conditions upstream and downstream. One time during the five-year life cycle of this Order, receiving water must also be monitored, concurrently with effluent, for the CTR priority toxic pollutants. These receiving water samples must be collected upstream of the lower pond, when flow is present.

Effluent monitoring of discharges from Discharge 001 includes flow, pH, turbidity, settleable solids, and chlorine residual. This Order also adds effluent monitoring for suspended solids, aluminum, copper, lead, silver, dichlorobromomethane, bis-2-ethylhexylphthalate, acute and chronic toxicity, and the CTR pollutants. Monitoring for suspended solids is required to determine compliance with new limitations for suspended solids. Acute toxicity monitoring is required to

assure compliance with the effluent limitation for toxicity in the Order. Chronic toxicity monitoring is required to assure compliance with the narrative toxicity objective of the Basin Plan and to determine the need for a chronic toxicity limitation. Monitoring for the toxic pollutants is required to determine compliance with the effluent limitations established for those pollutants by this Order; and in the case of aluminum, to determine the need for effluent limitations. Effluent monitoring requirements for Discharge 001 are summarized by the following table.

Effluent Monitoring Requirements – Outfall 001

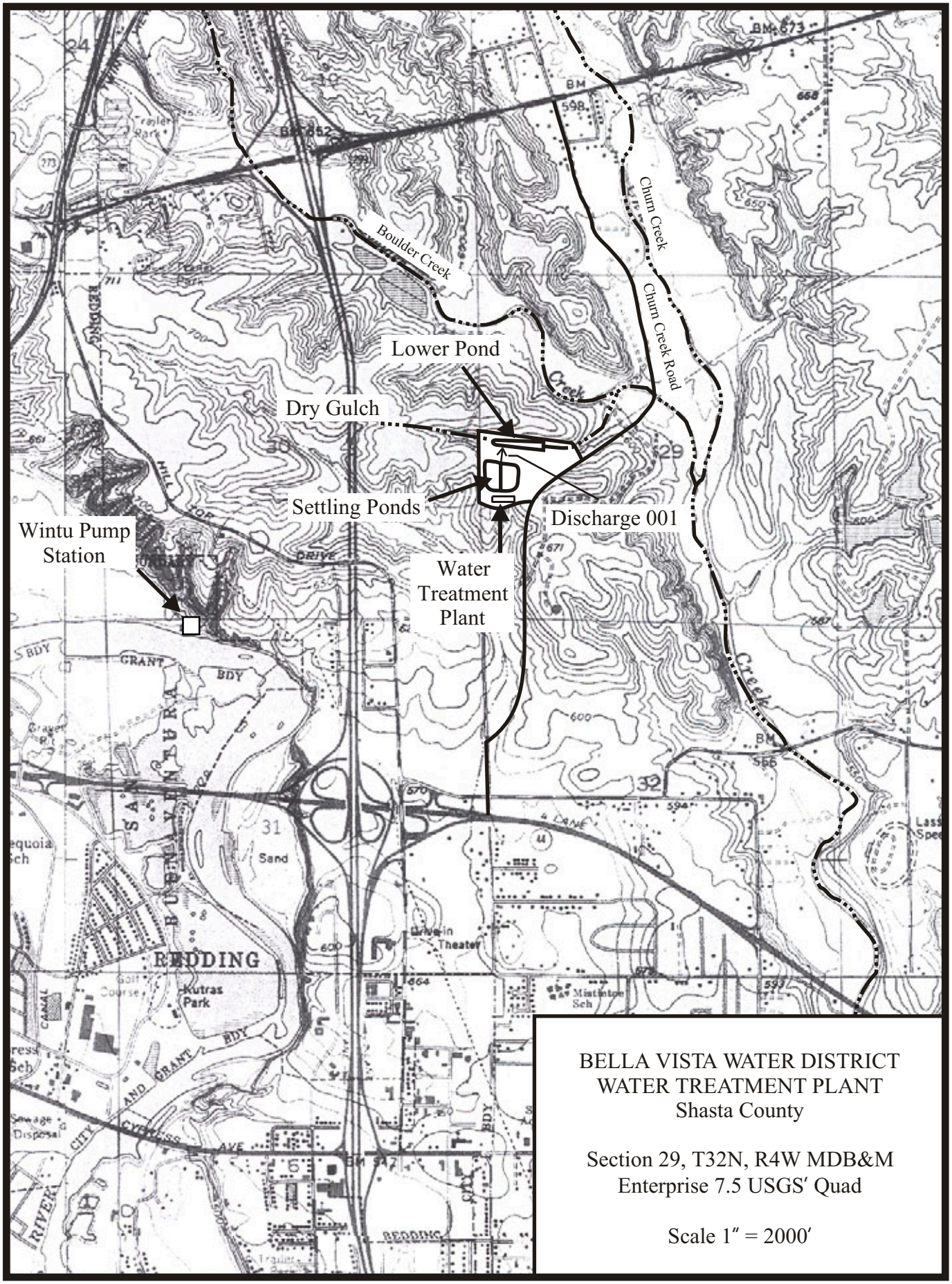
Constituent	Units	Type of Sample	Sample Frequency
Flow	mgd	meter	continuous
pH	pH units	grab	weekly
Turbidity	NTUs	grab	weekly
Settleable Solids	mL/L	grab	2 per month
Suspended Solids	mg/L	grab	2 per month
Chlorine	mg/L	grab	weekly
Aluminum	µg/L	grab	quarterly
Copper	µg/L	grab	quarterly
Lead	µg/L	grab	quarterly
Silver	µg/L	grab	quarterly
Bis-2-Ethylhexylphthalate	µg/L	grab	quarterly
Dichlorobromomethane	µg/L	grab	quarterly
Acute toxicity[1]	TUa	grab	annually
Chronic Toxicity[2]	TUc	grab	one time in permit lifecycle
CTR Pollutants[3]	µg/L	24 hr composite	one time in permit lifecycle

[1] Effluent shall be monitored for acute toxicity one time per year in accordance with procedures described in the attached monitoring and reporting program.

[2] Effluent shall be monitored for chronic toxicity one time in the five year lifecycle of this Order in accordance with procedures described in the attached monitoring and reporting program.

[3] Samples shall be analyzed for the toxic priority pollutants identified by the California Toxics Rule at 40 CFR 131.38. Effluent samples shall be collected simultaneously with receiving water samples to be analyzed for the CTR pollutants. If possible, effluent samples shall be composited proportionate to effluent flow. Monitoring shall be conducted in accordance with procedures described in the attached monitoring and reporting program.

In accordance with the Basin Plan and the State Implementation Plan, the Monitoring and Reporting Program includes considerable detail regarding acute and chronic toxicity monitoring procedures, as well as considerable detail regarding analytical procedures and reporting requirements for the CTR. The Discharger may need to apply for coverage under the State Board's current General Permit for Discharges Associated with Industrial Activities. Sludge monitoring requirements of the previous Order are retained.


Boulder Creek
Churn Creek
Churn Creek Road
Lower Pond
Dry Gulch
Settling Ponds
Discharge 001
Wintu Pump Station
Water Treatment Plant
REDDING
Sand
Kutras Park
Drive-in Theater
BELLA VISTA WATER DISTRICT
WATER TREATMENT PLANT
Shasta County
Section 29, T32N, R4W MDB&M
Enterprise 7.5 USGS′ Quad
Scale 1″ = 2000′

COPPER
Hardness Dependent Maximum Daily Effluent Limitations (MDELs) and Average Monthly Effluent Limitations (AMELs)
Calculation Spreadsheet

Water Hardness* (mg/L as $CaCO_3$)	**CMC[1] (acute)** 1-hour Average (ug/L, dissolved)	**CCC[2] (chronic)** 4-day Average (ug/L, dissolved)	**ECA_{acute}[3]** (ug/L, total recoverable)	**$ECA_{chronic}$[4]** (ug/L, total recoverable)	**LTA_{acute}[5]** (ug/L, total recoverable)	**$LTA_{chronic}$[6]** (ug/L, total recoverable)	**MDEL[7]** (ug/L, total recoverable)	**AMEL[8]** (ug/L, total recoverable)
<20	Calculate							
20	3.00	2.26	3.13	2.36	1.00	1.24	3.1	1.6
21	3.14	2.36	3.27	2.46	1.05	1.30	3.3	1.6
22	3.27	2.46	3.41	2.56	1.09	1.35	3.4	1.7
23	3.41	2.55	3.55	2.66	1.14	1.40	3.5	1.8
24	3.54	2.65	3.69	2.76	1.18	1.45	3.7	1.8
25	3.67	2.74	3.83	2.85	1.23	1.50	3.8	1.9
26	3.81	2.83	3.96	2.95	1.27	1.56	4.0	2.0
27	3.94	2.93	4.10	3.05	1.32	1.61	4.1	2.0
28	4.07	3.02	4.24	3.14	1.36	1.66	4.2	2.1
29	4.20	3.11	4.38	3.24	1.40	1.71	4.4	2.2
30	4.33	3.20	4.51	3.33	1.45	1.76	4.5	2.2
31	4.46	3.29	4.65	3.43	1.49	1.81	4.6	2.3
32	4.59	3.38	4.78	3.52	1.54	1.86	4.8	2.4
33	4.72	3.47	4.92	3.62	1.58	1.91	4.9	2.4
34	4.85	3.56	5.05	3.71	1.62	1.96	5.0	2.5
35	4.98	3.65	5.19	3.80	1.67	2.00	5.2	2.6
36	5.11	3.74	5.32	3.90	1.71	2.05	5.3	2.6
37	5.24	3.83	5.46	3.99	1.75	2.10	5.4	2.7
38	5.37	3.92	5.59	4.08	1.79	2.15	5.6	2.8
39	5.49	4.01	5.72	4.17	1.84	2.20	5.7	2.8
40	5.62	4.09	5.85	4.26	1.88	2.25	5.8	2.9
41	5.75	4.18	5.99	4.35	1.92	2.29	6.0	3.0
42	5.87	4.27	6.12	4.45	1.96	2.34	6.1	3.0
43	6.00	4.35	6.25	4.54	2.01	2.39	6.2	3.1
44	6.13	4.44	6.38	4.63	2.05	2.44	6.4	3.2
45	6.25	4.53	6.51	4.72	2.09	2.48	6.5	3.2
46	6.38	4.61	6.64	4.80	2.13	2.53	6.6	3.3
47	6.50	4.70	6.77	4.89	2.17	2.58	6.8	3.4
48	6.63	4.78	6.91	4.98	2.22	2.63	6.9	3.4
49	6.75	4.87	7.04	5.07	2.26	2.67	7.0	3.5
50	6.88	4.95	7.16	5.16	2.30	2.72	7.2	3.6
51	7.00	5.04	7.29	5.25	2.34	2.77	7.3	3.6
52	7.13	5.12	7.42	5.34	2.38	2.81	7.4	3.7
53	7.25	5.21	7.55	5.42	2.42	2.86	7.5	3.8
54	7.37	5.29	7.68	5.51	2.47	2.90	7.7	3.8
55	7.50	5.37	7.81	5.60	2.51	2.95	7.8	3.9
56	7.62	5.46	7.94	5.68	2.55	3.00	7.9	3.9
57	7.74	5.54	8.07	5.77	2.59	3.04	8.1	4.0
58	7.87	5.62	8.19	5.86	2.63	3.09	8.2	4.1
59	7.99	5.71	8.32	5.94	2.67	3.13	8.3	4.1
60	8.11	5.79	8.45	6.03	2.71	3.18	8.4	4.2
61	8.23	5.87	8.58	6.11	2.75	3.22	8.6	4.3
62	8.36	5.95	8.70	6.20	2.79	3.27	8.7	4.3
63	8.48	6.03	8.83	6.29	2.84	3.31	8.8	4.4
64	8.60	6.12	8.96	6.37	2.88	3.36	8.9	4.5
65	8.72	6.20	9.09	6.46	2.92	3.40	9.1	4.5
>65	Calculate							

* Water Hardness (mg/L as $CaCO_3$). Because Bella Vista Water District discharges to a small instream pond, and upstream receiving water is not always present, use hardness of pond overflow water or pond water in the immediate vicinity of the pond overflow structure.

[1] CMC (1-hour average, acute) = $e^{(0.905)(\ln \text{hardness})-1.612}$, from Basin Plan (ug/L, dissolved)

[2] CCC (4-day average, chronic) = 0.960 x $e^{(0.8545)(\ln \text{hardness})-1.702}$, from CTR Freshwater Aquatic Life (ug/L, dissolved)

[3] ECA_{acute} = CMC / 0.960, (ug/L, total recoverable)

[4] $ECA_{chronic}$ = CCC / 0.960, (ug/L, total recoverable)

[5] LTA_{acute} = ECA_{acute} x 0.321 (ug/L, total recoverable), assumes CV=0.6 for 10 samples or less per SIP.

[6] $LTA_{chronic}$ = $ECA_{chronic}$ x 0.527 (ug/L, total recoverable), assumes CV=0.6 for 10 samples or less per SIP.

[7] MDEL = LTA x 3.11 (ug/L, total recoverable), where LTA equals the lowest of LTA_{acute} and $LTA_{chronic}$, assumes CV=0.6 for 10 samples or less per SIP for Aquatic Life.

[8] AMEL = LTA x 1.55 (ug/L, total recoverable), where LTA equals the lowest of LTA_{acute} and $LTA_{chronic}$, assumes CV=0.6 for 10 samples or less per SIP for Aquatic Life.